Influence of Intermittent Preventive Treatment on Antibodies to VAR2CSA in Pregnant Cameroonian Women.

Journal: Am J Trop Med Hyg

Publication Year: 2016

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PubMed link: 26711513

Funding Grants: San Jose State University Stem Cell Internships for Laboratory-based Learning (SJSU SCILL)

Public Summary:
Intermittent preventive treatment (IPT) and insecticide-treated bed nets are the standard of care for preventing malaria in pregnant women. Since these preventive measures reduce exposure to malaria, their influence on the antibody (Ab) response to the parasite antigen VAR2CSA was evaluated in pregnant Cameroonian women exposed to holoendemic malaria. Ab levels to full-length VAR2CSA (FV2), variants of the six Duffy binding like (DBL) domains, and proportion of high avidity Ab to FV2 were measured longitudinally in 92 women before and 147 women after IPT. As predicted, reduced exposure interfered with acquisition of Ab in primigravidae, with 71% primigravidae being seronegative to FV2 at delivery. Use of IPT for > 13 weeks by multigravidae resulted in 26% of women being seronegative at delivery and a significant reduction in Ab levels to FV2, DBL5, DBL6, proportion of high avidity Ab to FV2, and number of variants recognized. Thus, in women using IPT important immune responses were not acquired by primigravidae and reduced in a portion of multigravidae, especially women with one to two previous pregnancies. Longitudinal data from individual multigravidae on IPT suggest that lower Ab levels most likely resulted from lack of boosting of the VAR2CSA response and not from a short-lived Ab response.

Scientific Abstract:
Intermittent preventive treatment (IPT) and insecticide-treated bed nets are the standard of care for preventing malaria in pregnant women. Since these preventive measures reduce exposure to malaria, their influence on the antibody (Ab) response to the parasite antigen VAR2CSA was evaluated in pregnant Cameroonian women exposed to holoendemic malaria. Ab levels to full-length VAR2CSA (FV2), variants of the six Duffy binding like (DBL) domains, and proportion of high avidity Ab to FV2 were measured longitudinally in 92 women before and 147 women after IPT. As predicted, reduced exposure interfered with acquisition of Ab in primigravidae, with 71% primigravidae being seronegative to FV2 at delivery. Use of IPT for > 13 weeks by multigravidae resulted in 26% of women being seronegative at delivery and a significant reduction in Ab levels to FV2, DBL5, DBL6, proportion of high avidity Ab to FV2, and number of variants recognized. Thus, in women using IPT important immune responses were not acquired by primigravidae and reduced in a portion of multigravidae, especially women with one to two previous pregnancies. Longitudinal data from individual multigravidae on IPT suggest that lower Ab levels most likely resulted from lack of boosting of the VAR2CSA response and not from a short-lived Ab response.